

# **Programming Guide**

## ***Unitech Bluetooth Service API***

*For Unitech Scanner Utility version 1.0.18 and above*

unitech electronics Documentation  
Issue1, revision 5  
August. 2019

## Revision History

| Release | Revision | Date       | Changes                                                                                                                                              |
|---------|----------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | 0        | 2019-04-30 | First release                                                                                                                                        |
| 1       | 1        | 2019-05-28 | 1. Add new command to configure scanner BT signal checking level<br>2. Revise appendix A                                                             |
| 1       | 2        | 2019-06-05 | 1. Fix typo of extended data of Scanner BT Signal Checking Level<br>2. Add notes of Data Ack and Auto Connection                                     |
| 1       | 3        | 2019-07-05 | 1. Add interface to start Unitech Scanner Utility without GUI in Section 1<br>2. Add three new APIs of Unitech Scanner Utility settings in Section 5 |
| 1       | 4        | 2019-07-18 | 1. Revise the format of Appendix A                                                                                                                   |
| 1       | 5        | 2019-08-12 | 1. Update sample code of starting Unitech Scanner Utility without GUI                                                                                |

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## 1. Preface

This document is to describe scanner management API for managing unitech Bluetooth scanners from Android devices using Unitech Scanner Utility. Unitech Scanner Utility works for scanners in BT SPP mode and requests and responses are through Android broadcast.

To start Unitech Scanner Utility without GUI, developers can startActivity with extra parameter “ismoveTaskToBack” = true. Below the sample code segment:

```
Intent sendIntent = getPackageManager().getLaunchIntentForPackage("com.unitech.scanner.utility");  
sendIntent.setFlags(Intent.FLAG_ACTIVITY_CLEAR_TOP|Intent.FLAG_ACTIVITY_NEW_TASK);  
sendIntent.putExtra("ismoveTaskToBack", true);  
startActivity(sendIntent);
```

To generate barcode in user application for the scanner to scan to connect to the device, the barcode format is //.A{Android device MAC address}. For example, if the BT MAC address of Android device is 11:22:33:44:55:66, the barcode should present //.A112233445566

## 2. Scanner information and connection

### 2.1 Get Scanner Connection List

|                        |                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|
| <b>Description</b>     | Get the list of connected scanners                                                   |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_scanners                                           |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_scanners_reply                                     |
| <b>Extended data</b>   | Name: "connectedScanners"<br>Type: String Array (the list of scanner Serial Numbers) |

### 2.2 Set Target Scanner

|                       |                                                                           |
|-----------------------|---------------------------------------------------------------------------|
| <b>Description</b>    | Set the target operation scanner if there are multiple scanners connected |
| <b>Request Action</b> | unitech.scanservice.bluetooth.set_scanner                                 |
| <b>Extended data</b>  | Name: "serialNo"<br>Type: String                                          |

### 2.3 Ask Scanner to un-pair

|                       |                                                                           |
|-----------------------|---------------------------------------------------------------------------|
| <b>Description</b>    | Ask scanner to forget the pairing information with current Android device |
| <b>Request Action</b> | unitech.scanservice.bluetooth.unpair                                      |

### 2.4 Get Scanner Serial Number

|                        |                                            |
|------------------------|--------------------------------------------|
| <b>Description</b>     | Get scanner serial number                  |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_sn       |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_sn_reply |
| <b>Extended data</b>   | Name: "sn"<br>Type: String                 |

## 2.5 Get Scanner Bluetooth Name

|                        |                                              |
|------------------------|----------------------------------------------|
| <b>Description</b>     | Get scanner BT MAC address                   |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_name       |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_name_reply |
| <b>Extended data</b>   | Name: "name"<br>Type: String                 |

## 2.6 Get Scanner Bluetooth MAC address

|                        |                                                 |
|------------------------|-------------------------------------------------|
| <b>Description</b>     | Get scanner BT MAC address                      |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_address       |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_address_reply |
| <b>Extended data</b>   | Name: "address"<br>Type: String                 |

## 2.7 Get Scanner Firmware Version

|                        |                                            |
|------------------------|--------------------------------------------|
| <b>Description</b>     | Get scanner firmware version               |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_fw       |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_fw_reply |
| <b>Extended data</b>   | Name: "fw"<br>Type: String                 |

## 2.8 Get Scanner Battery Level

|                        |                                                                                |
|------------------------|--------------------------------------------------------------------------------|
| <b>Description</b>     | Get scanner battery level                                                      |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_battery                                      |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_battery_reply                                |
| <b>Extended data</b>   | Name: "battery"<br>Type: Integer (0=charging, 1=very low, 2=low, 3=ok, 4=full) |

## 3. Scanner configuration

### 3.1 Enable/Disable Scanner Trigger Key

|                        |                                                                                                                                 |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>     | Enable or disable scanner trigger key. When the trigger key is disable, the scanner does not scan when users press trigger key. |
| <b>Default value</b>   | Enabled                                                                                                                         |
| GET API                |                                                                                                                                 |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_trig                                                                                          |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_trig_reply                                                                                    |
| <b>Extended data</b>   | Name: "trig"<br>Type: Boolean (true=ON, false= OFF)                                                                             |
| SET API                |                                                                                                                                 |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.set_trig                                                                                          |
| <b>Extended data</b>   | Name: "trig"<br>Type: Boolean (true=ON, false= OFF)                                                                             |

### 3.2 Start Decode

|                       |                                                                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>    | Ask scanner to start decode which is the same as users press the physical scanner trigger key. Together with Stop Decode can achieve remote trigger capability. |
| <b>Request Action</b> | unitech.scanservice.bluetooth.start_decode                                                                                                                      |

### 3.3 Stop Decode

|                       |                                                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>    | Ask scanner to stop decode which is the same as users release the physical scanner trigger key. Together with Start Decode can achieve remote trigger capability. |
| <b>Request Action</b> | unitech.scanservice.bluetooth.stop_decode                                                                                                                         |

## 3.4 Enable/Disable Data ACK/NAK

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>     | <p>Configure Scanner to require ACK or not. When Data ACK/NAK is configured as ON, scanner waits for ACK/NAK while transmitting each data to the host. If scanner does not receive ACK in three seconds, it will retransmit data at most three times.</p> <p><i>Note: this configuration is valid only when the scanner is in BT SPP mode and Auto Connection is ON. <b><u>Data ACK must be enabled to get scanned data via API.</u></b></i></p> |
| <b>Default value</b>   | OFF                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| GET API                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_ack                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_ack_reply                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Extended data</b>   | <p>Name: "ack"</p> <p>Type: Boolean (true=ON, false= OFF)</p>                                                                                                                                                                                                                                                                                                                                                                                    |
| SET API                |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.set_ack                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Extended data</b>   | <p>Name: "ack"</p> <p>Type: Boolean (true=ON, false= OFF)</p>                                                                                                                                                                                                                                                                                                                                                                                    |

## 3.5 Enable/Disable Auto Connection

|                        |                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>     | <p>Configure Scanner to automatically connect to the host or not. When Auto Connection is configured as OFF, scanner will not proactively connect to any device but waiting for other devices to connect.</p> <p><i>Note: this configuration is valid when the scanner is in BT SPP mode. <b><u>Auto Connection must be enabled to work with Scanner Utility.</u></b></i></p> |
| <b>Default value</b>   | ON                                                                                                                                                                                                                                                                                                                                                                            |
| GET API                |                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_auto_conn                                                                                                                                                                                                                                                                                                                                   |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_auto_conn_reply                                                                                                                                                                                                                                                                                                                             |
| <b>Extended data</b>   | <p>Name: "autoConn"</p> <p>Type: Boolean (true=ON, false= OFF)</p>                                                                                                                                                                                                                                                                                                            |
| SET API                |                                                                                                                                                                                                                                                                                                                                                                               |

|                       |                                                         |
|-----------------------|---------------------------------------------------------|
| <b>Request Action</b> | unitech.scanservice.bluetooth.set_auto_conn             |
| <b>Extended data</b>  | Name: "autoConn"<br>Type: Boolean (true=ON, false= OFF) |

## 3.6 Scanner Symbology Configuration

|                        |                                                                                                       |
|------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Description</b>     | Configure Scanner Symbology via SSI command. Detailed configuration items please refer to appendix A. |
| <b>Default value</b>   | NA                                                                                                    |
| GET API                |                                                                                                       |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_config                                                              |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_config_reply                                                        |
| <b>Extended data</b>   | Name: (refer to Appendix A)<br>Type: Integer (refer to Appendix A)                                    |
| SET API                |                                                                                                       |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.set_config                                                              |
| <b>Extended data</b>   | Name: (refer to Appendix A)<br>Type: Integer (refer to Appendix A)                                    |

## 3.7 Scanner BT Signal Checking Level

|                        |                                                                                                             |
|------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Description</b>     | Configure Scanner Bluetooth signal checking level. Higher Level requires higher threshold for data sending. |
| <b>Default value</b>   | 0 (Normal Level)                                                                                            |
| GET API                |                                                                                                             |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.get_bt_signal_checking_level                                                  |
| <b>Response Action</b> | unitech.scanservice.bluetooth.get_bt_signal_checking_level_reply                                            |
| <b>Extended data</b>   | Name: "btSignalCheckingLevel"<br>Type: Integer (0= Normal Level, 1= Higher Level)                           |
| SET API                |                                                                                                             |
| <b>Request Action</b>  | unitech.scanservice.bluetooth.set_bt_signal_checking_level                                                  |
| <b>Extended data</b>   | Name: "btSignalCheckingLevel"<br>Type: Integer (0= Normal Level, 1= Higher Level)                           |

## 4. Scan Data

### 4.1 Received Scanned Data

| Receive Data                 |                                                                                                                                                                                                                      |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Action</b>                | unitech.scanservice.data                                                                                                                                                                                             |
| <b>Extended data</b>         | Name: "text"<br>Type: String                                                                                                                                                                                         |
| Receive Data Length          |                                                                                                                                                                                                                      |
| <b>Action</b>                | unitech.scanservice.datalength                                                                                                                                                                                       |
| <b>Extended data</b>         | Name: "text"<br>Type: Integer                                                                                                                                                                                        |
| Receive Data Bytes           |                                                                                                                                                                                                                      |
| <b>Action</b>                | unitech.scanservice.databyte                                                                                                                                                                                         |
| <b>Extended data</b>         | Name: "text"<br>Type: byte[]<br><i>Note: "databyte" will return unmodified raw data from the engine, which might be different from the String "data". Thus need to use databytelength to get the correct length.</i> |
| Receive Length of Data Bytes |                                                                                                                                                                                                                      |
| <b>Action</b>                | unitech.scanservice.databytelength                                                                                                                                                                                   |
| <b>Extended data</b>         | Name: "text"<br>Type: Integer                                                                                                                                                                                        |
| Receive All                  |                                                                                                                                                                                                                      |
| <b>Action</b>                | unitech.scanservice.dataall                                                                                                                                                                                          |
| <b>Extended data</b>         | Name: "databyte"<br>Type: byte[]<br>Name: "databytelength"<br>Type: Integer                                                                                                                                          |
| Receive Data                 |                                                                                                                                                                                                                      |
| <b>Action</b>                | unitech.scanservice.data                                                                                                                                                                                             |
| <b>Extended data</b>         | Name: "text"                                                                                                                                                                                                         |

|  |              |
|--|--------------|
|  | Type: String |
|--|--------------|

## 4.2 Send ACK/Indicator

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>   | When scanner DATA ACK/NAK is enabled, ACK is required to be sent to the scanner. Some indicators can be sent along with the ACK or can be sent to the scanner independently.                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Action</b>        | unitech.scanservice.bluetooth.set_indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Extended data</b> | <p>Name: "dataAck"<br/>Type: Boolean (true= with Data ACK, false = indicator only)</p> <p>Name: "beepTime"<br/>Type: Integer (0=no beep, 1=beep once, 2=beep twice, 3=beep 3 times)</p> <p>Name: "vibrate"<br/>Type: Boolean (false= no vibrate, true=vibrate)</p> <p>Name: "ledColor"<br/>Type: String ("none"=no led, "red"=red led, "green"=green led, "blue"=blue led)</p> <p><i>Note: beepTime, vibrate, and ledColor are optional parameters. Only ACK will be transmitted if dataAck = true without beepTime, vibrate, and ledColor specified.</i></p> |

## 5. Unitech Scanner Utility Settings

### 5.1 Export Settings

|                       |                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>    | Export Unitech Scanner Utility Settings (Scanner configuration, Application settings) to files <ul style="list-style-type: none"> <li>• /sdcard/USUConfig.001</li> <li>• /sdcard/USUConfig.002</li> </ul> |
| <b>Request Action</b> | unitech.scanservice.bluetooth.export_settings                                                                                                                                                             |

### 5.2 Import Settings

|                       |                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>    | Import Unitech Scanner Utility Settings (Scanner configuration, Application settings) from files <ul style="list-style-type: none"> <li>• /sdcard/USUConfig.001</li> <li>• /sdcard/USUConfig.002</li> </ul> |
| <b>Request Action</b> | unitech.scanservice.bluetooth.import_settings                                                                                                                                                               |

### 5.3 Upload Settings

|                       |                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------|
| <b>Description</b>    | Upload Unitech Scanner Utility Settings (Scanner configuration) to the connected scanner |
| <b>Request Action</b> | unitech.scanservice.bluetooth.upload_all_settings                                        |

## Appendix A

Appendix A shows the parameters of each configuration item that developers can set through Scanner Symbology Configuration command mentioned in Section 3.6.

**Note** the description started with \* is the default value.

### 1.1 UPC/EAN

1. To enable or disable UPC-A

| Name  | Value | Description |
|-------|-------|-------------|
| UPC-A | 0     | Disable     |
|       | 1     | *Enable     |

2. To enable or disable UPC-E

| Name  | Value | Description |
|-------|-------|-------------|
| UPC-E | 0     | Disable     |
|       | 1     | *Enable     |

3. To enable or disable UPC-E1

| Name   | Value | Description |
|--------|-------|-------------|
| UPC-E1 | 0     | *Disable    |
|        | 1     | Enable      |

4. To enable or disable EAN-8/JAN-8

| Name        | Value | Description |
|-------------|-------|-------------|
| EAN-8/JAN-8 | 0     | Disable     |
|             | 1     | *Enable     |

5. To enable or disable EAN-13/JAN-13

| Name          | Value | Description |
|---------------|-------|-------------|
| EAN-13/JAN-13 | 0     | Disable     |
|               | 1     | *Enable     |

6. To enable or disable Bookland EAN

| Name         | Value | Description |
|--------------|-------|-------------|
| Bookland EAN | 0     | *Disable    |
|              | 1     | Enable      |

7. To Set Bookland ISBN Format (valid when bookland EAN is enabled)

| Name                 | Value | Description                                                                                                                                                                                                                                     |
|----------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bookland ISBN Format | 0     | <b>*Bookland ISBN-10</b> - The decoder reports Bookland data starting with 978 in traditional 10-digit format with the special Bookland check digit for backward-compatibility. Data starting with 979 is not considered Bookland in this mode. |
|                      | 1     | <b>Bookland ISBN-13</b> - The decoder reports Bookland data (starting with either 978 or 979) as EAN-13 in 13-digit format to meet the 2007 ISBN-13 protocol.                                                                                   |

8. To set decode UPC/EAN/JAN Supplementals

| Name                            | Value | Description                                |
|---------------------------------|-------|--------------------------------------------|
| Decode UPC/EAN/JAN Supplemental | 0     | *Ignore Supplementals                      |
|                                 | 1     | Decode UPC/EAN/JAN Only With Supplementals |
|                                 | 2     | Autodiscriminate UPC/EAN/JAN Supplementals |
|                                 | 3     | Enable Smart Supplemental Mode             |
|                                 | 4     | Enable 378/379 Supplemental Mode           |
|                                 | 5     | Enable 978/979 Supplemental Mode           |
|                                 | 6     | Enable 414/419/434/439 Supplemental Mode   |
|                                 | 7     | Enable 977 Supplemental Mode               |
|                                 | 8     | Enable 491 Supplemental Mode               |

9. To set Transmit UPC-A Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data. It is always verified to guarantee the integrity of the data.

| Name                       | Value | Description                       |
|----------------------------|-------|-----------------------------------|
| Transmit UPC-A Check Digit | 0     | Do Not Transmit UPC-A Check Digit |
|                            | 1     | *Transmit UPC-A Check Digit       |

#### 10. To set Transmit UPC-E Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data. It is always verified to guarantee the integrity of the data.

| Name                       | Value | Description                       |
|----------------------------|-------|-----------------------------------|
| Transmit UPC-E Check Digit | 0     | Do Not Transmit UPC-E Check Digit |
|                            | 1     | *Transmit UPC-E Check Digit       |

#### 11. To set Transmit UPC-E1 Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data. It is always verified to guarantee the integrity of the data.

| Name                        | Value | Description                       |
|-----------------------------|-------|-----------------------------------|
| Transmit UPC-E1 Check Digit | 0     | Do Not Transmit UPC-E Check Digit |
|                             | 1     | * Transmit UPC-E Check Digit      |

#### 12. To set UPC-A Preamble

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-A preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.

| Name           | Value | Description                                                                        |
|----------------|-------|------------------------------------------------------------------------------------|
| UPC-A Preamble | 0     | No Preamble (<DATA>)                                                               |
|                | 1     | * System Character (<SYSTEM CHARACTER> <DATA>)                                     |
|                | 2     | System Character & Country Code (< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)<DATA>) |

#### 13. To set UPC-E Preamble

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-E preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.

| Name           | Value | Description                                                                        |
|----------------|-------|------------------------------------------------------------------------------------|
| UPC-E Preamble | 0     | No Preamble (<DATA>)                                                               |
|                | 1     | * System Character (<SYSTEM CHARACTER> <DATA>)                                     |
|                | 2     | System Character & Country Code (< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)<DATA>) |

#### 14. To set UPC-E1 Preamble

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-E1 preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.

| Name            | Value | Description                                                                        |
|-----------------|-------|------------------------------------------------------------------------------------|
| UPC-E1 Preamble | 0     | No Preamble (<DATA>)                                                               |
|                 | 1     | * System Character (<SYSTEM CHARACTER> <DATA>)                                     |
|                 | 2     | System Character & Country Code (< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)<DATA>) |

#### 15. To enable Convert UPC-E to UPC-A

Enable this to convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

Disable this to transmit UPC-E decoded data as UPC-E data, without conversion.

| Name                   | Value | Description                              |
|------------------------|-------|------------------------------------------|
| Convert UPC-E to UPC-A | 0     | *Do Not Convert UPC-E to UPC-A (Disable) |
|                        | 1     | Convert UPC-E to UPC-A (Enable)          |

#### 16. To enable Convert UPC-E1 to UPC-A

Enable this to convert UPC-E1 decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

Disable this to transmit UPC-E1 decoded data as UPC-E1 data, without conversion.

| Name                    | Value | Description                               |
|-------------------------|-------|-------------------------------------------|
| Convert UPC-E1 to UPC-A | 0     | *Do Not Convert UPC-E1 to UPC-A (Disable) |
|                         | 1     | Convert UPC-E1 to UPC-A (Enable)          |

#### 17. To enable EAN-8/JAN-8 Extend

Enable this parameter to add five leading zeros to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols.

Disable this to transmit EAN-8 symbols as is.

| Name               | Value | Description                  |
|--------------------|-------|------------------------------|
| EAN-8/JAN-8 Extend | 0     | *Disable EAN/JAN Zero Extend |
|                    | 1     | Enable EAN/JAN Zero Extend   |

#### 18. To enable UCC Coupon Extended Code

Enable this parameter to decode UPC-A bar codes starting with digit '5', EAN-13 bar codes starting with digit '99', and UPC-A/GS1-128 Coupon Codes. UPCA, EAN-13, and GS1-128 must be enabled to scan all types of Coupon Codes.

| Name                     | Value | Description                       |
|--------------------------|-------|-----------------------------------|
| UCC Coupon Extended Code | 0     | *Disable UCC Coupon Extended Code |
|                          | 1     | Enable UCC Coupon Extended Code   |

#### 19. To enable ISSN EAN

| Name     | Value | Description       |
|----------|-------|-------------------|
| ISSN EAN | 0     | *Disable ISSN EAN |
|          | 1     | Enable ISSN EAN   |

## 1.2 Code 128

#### 1. To enable Code 128

| Name     | Value | Description      |
|----------|-------|------------------|
| Code 128 | 0     | Disable Code 128 |
|          | 1     | *Enable Code 128 |

#### 2. To set lengths of Code 128

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 128 to any length, one or two

discrete lengths, or lengths within a specific range. The default is Any Length.

a. **Set lengths to any length:** decode Code 128 symbols in any length

| Name                        | Value |
|-----------------------------|-------|
| Code 128 Length Parameter 1 | 0     |
| Code 128 Length Parameter 2 | 0     |

b. **Set lengths to one discrete length:** Decode only Code 128 symbols containing a selected length.

| Name                        | Value                        |
|-----------------------------|------------------------------|
| Code 128 Length Parameter 1 | The selected length (1 ~ 55) |
| Code 128 Length Parameter 2 | 0                            |

c. **Set lengths to two discrete lengths:** Decode only Code 128 symbols containing either of two lengths

| Name                        | Value                                |
|-----------------------------|--------------------------------------|
| Code 128 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Code 128 Length Parameter 2 | The smaller selected length (1 ~ 55) |

d. **Set lengths within a specific range:** Decode Code 128 symbols with a specific length range.

| Name                        | Value                                |
|-----------------------------|--------------------------------------|
| Code 128 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Code 128 Length Parameter 2 | The larger selected length (1 ~ 55)  |

3. To enable GS1-128

| Name    | Value | Description     |
|---------|-------|-----------------|
| GS1-128 | 0     | Disable GS1-128 |
|         | 1     | *Enable GS1-128 |

4. To enable ISBT 128

| Name     | Value | Description      |
|----------|-------|------------------|
| ISBT 128 | 0     | Disable ISBT 128 |
|          | 1     | *Enable ISBT 128 |

## 1.3 Code 39

### 1. To enable Code 39

| Name    | Value | Description     |
|---------|-------|-----------------|
| Code 39 | 0     | Disable Code 39 |
|         | 1     | *Enable Code 39 |

### 2. To enable Trioptic Code 39

Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges.

Trioptic Code 39 symbols always contain six characters.

**NOTE** You cannot enable Trioptic Code 39 and Code 39 Full ASCII simultaneously.

| Name             | Value | Description               |
|------------------|-------|---------------------------|
| Trioptic Code 39 | 0     | *Disable Trioptic Code 39 |
|                  | 1     | Enable Trioptic Code 39   |

### 3. To convert Code 39 to Code 32

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry.

**NOTE** Code 39 must be enabled for this parameter to function.

| Name                          | Value | Description                         |
|-------------------------------|-------|-------------------------------------|
| Convert Code 39 to<br>Code 32 | 0     | *Disable Convert Code 39 to Code 32 |
|                               | 1     | Enable Convert Code 39 to Code 32   |

### 4. To set Code 32 Prefix

Enable or disable adding the prefix character "A" to all Code 32 bar codes.

**NOTE** Convert Code 39 to Code 32 must be enabled for this parameter to function.

| Name                          | Value | Description             |
|-------------------------------|-------|-------------------------|
| Convert Code 39 to<br>Code 32 | 0     | *Disable Code 32 Prefix |
|                               | 1     | Enable Code 32 Prefix   |

### 5. To set lengths of Code 39

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 39 to any length, one or two discrete lengths, or lengths within a specific range. If Code 39 Full ASCII is enabled, **Length Within Range** or **Any Length** are the preferred options. The default is **Length Within Range: 2 to 55**.

a. **Set lengths to any length:** decode Code 39 symbols in any length

| Name                       | Value |
|----------------------------|-------|
| Code 39 Length Parameter 1 | 0     |
| Code 39 Length Parameter 2 | 0     |

b. **Set lengths to one discrete length:** Decode only Code 39 symbols containing a selected length.

| Name                       | Value                        |
|----------------------------|------------------------------|
| Code 39 Length Parameter 1 | The selected length (1 ~ 55) |
| Code 39 Length Parameter 2 | 0                            |

c. **Set lengths to two discrete lengths:** Decode only Code 39 symbols containing either of two lengths

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Code 39 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Code 39 Length Parameter 2 | The smaller selected length (1 ~ 55) |

d. **Set lengths within a specific range:** Decode Code 39 symbols with a specific length range.

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Code 39 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Code 39 Length Parameter 2 | The larger selected length (1 ~ 55)  |

5. To set Code 39 Check Digit Verification

Enable this feature to check the integrity of all Code 39 symbols to verify that the data complies with specified check digit algorithm. Only Code 39 symbols which include a modulo 43 check digit are decoded. Enable this feature if the Code 39 symbols contain a Modulo 43 check digit.

| Name                             | Value | Description                  |
|----------------------------------|-------|------------------------------|
| Code 39 Check Digit Verification | 0     | *Disable Code 39 Check Digit |
|                                  | 1     | Enable Code 39 Check Digit   |

6. To set Transmit Code 39 Check Digit

Transmit Code 39 data with or without the check digit.

**NOTE** Code 39 Check Digit Verification must be enabled for this parameter to function.

| Name                         | Value | Description                                    |
|------------------------------|-------|------------------------------------------------|
| Transmit Code 39 Check Digit | 0     | *Do Not Transmit Code 39 Check Digit (Disable) |
|                              | 1     | Transmit Code 39 Check Digit (Enable)          |

## 7. To enable Code 39 Full ASCII Conversion

Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set.

**NOTE** You cannot enable Trioptic Code 39 and Code 39 Full ASCII simultaneously.

| Name                          | Value | Description                 |
|-------------------------------|-------|-----------------------------|
| Code 39 Full ASCII Conversion | 0     | *Disable Code 39 Full ASCII |
|                               | 1     | Enable Code 39 Full ASCII   |

# 1.4 Code 93

## 1. To enable Code 93

| Name    | Value | Description      |
|---------|-------|------------------|
| Code 93 | 0     | *Disable Code 93 |
|         | 1     | Enable Code 93   |

## 2. To set lengths of Code 93

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 93 to any length, one or two discrete lengths, or lengths within a specific range. The default is **Length Within Range: 4 to 55**.

### a. Set lengths to any length: decode Code 93 symbols in any length

| Name                       | Value |
|----------------------------|-------|
| Code 93 Length Parameter 1 | 0     |
| Code 93 Length Parameter 2 | 0     |

### b. Set lengths to one discrete length: Decode only Code 93 symbols containing a selected length.

| Name                       | Value                        |
|----------------------------|------------------------------|
| Code 93 Length Parameter 1 | The selected length (1 ~ 55) |
| Code 93 Length Parameter 2 | 0                            |

- c. **Set lengths to two discrete lengths:** Decode only Code 93 symbols containing either of two lengths

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Code 93 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Code 93 Length Parameter 2 | The smaller selected length (1 ~ 55) |

- d. **Set lengths within a specific range:** Decode Code 93 symbols with a specific length range.

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Code 93 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Code 93 Length Parameter 2 | The larger selected length (1 ~ 55)  |

## 1.5 Code 11

1. To enable Code 11

| Name    | Value | Description      |
|---------|-------|------------------|
| Code 11 | 0     | *Disable Code 11 |
|         | 1     | Enable Code 11   |

2. To set lengths of Code 11

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 11 to any length, one or two discrete lengths, or lengths within a specific range. The default is **Length Within Range: 4 to 55**.

- a. **Set lengths to any length:** decode Code 11 symbols in any length

| Name                       | Value |
|----------------------------|-------|
| Code 11 Length Parameter 1 | 0     |
| Code 11 Length Parameter 2 | 0     |

- b. **Set lengths to one discrete length:** Decode only Code 11 symbols containing a selected

length.

| Name                       | Value                        |
|----------------------------|------------------------------|
| Code 11 Length Parameter 1 | The selected length (1 ~ 55) |
| Code 11 Length Parameter 2 | 0                            |

- c. **Set lengths to two discrete lengths:** Decode only Code 11 symbols containing either of two lengths

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Code 11 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Code 11 Length Parameter 2 | The smaller selected length (1 ~ 55) |

- d. **Set lengths within a specific range:** Decode Code 11 symbols with a specific length range.

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Code 11 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Code 11 Length Parameter 2 | The larger selected length (1 ~ 55)  |

### 3. To set Code 11 Check Digit Verification

This feature allows the decoder to check the integrity of all Code 11 symbols to verify that the data complies with the specified check digit algorithm. This selects the check digit mechanism for the decoded Code 11 bar code. The options are to check for one check digit, check for two check digits, or disable the feature.

| Name                             | Value | Description      |
|----------------------------------|-------|------------------|
| Code 11 Check Digit Verification | 0     | *Disable         |
|                                  | 1     | One Check Digit  |
|                                  | 2     | Two Check Digits |

### 4. To set Transmit Code 11 Check Digit

This feature allows the decoder to check the integrity of all Code 11 symbols to verify that the data complies with the specified check digit algorithm. This selects the check digit mechanism for the decoded Code 11 bar code. The options are to check for one check digit, check for two check digits, or disable the feature.

**NOTE** Code 11 Check Digit Verification must be enabled for this parameter to function.

| Name                         | Value | Description                                       |
|------------------------------|-------|---------------------------------------------------|
| Transmit Code 11 Check Digit | 0     | *Do Not Transmit Code 11 Check Digit(s) (Disable) |
|                              | 1     | Transmit Code 11 Check Digit(s) (Enable)          |

## 1.6 Interleaved 2 of 5 (ITF)

### 1. To enable Interleaved 2 of 5

| Name               | Value | Description                 |
|--------------------|-------|-----------------------------|
| Interleaved 2 of 5 | 0     | *Disable Interleaved 2 of 5 |
|                    | 1     | Enable Interleaved 2 of 5   |

### 2. To set lengths of Interleaved 2 of 5

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for I 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range. The default is **One Discrete Length: 14**.

**Note** Due to the construction of the I 2 of 5 symbology, it is possible for a scan line covering only a portion of the code to transmit as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (I 2 of 5 - One Discrete Length, Two Discrete Lengths) for I 2 of 5 applications.

#### a. Set lengths to any length: decode I 2 of 5 symbols in any length

| Name                                  | Value |
|---------------------------------------|-------|
| Interleaved 2 of 5 Length Parameter 1 | 0     |
| Interleaved 2 of 5 Length Parameter 2 | 0     |

#### b. Set lengths to one discrete length: Decode only I 2 of 5 symbols containing a selected length.

| Name                                  | Value                        |
|---------------------------------------|------------------------------|
| Interleaved 2 of 5 Length Parameter 1 | The selected length (1 ~ 55) |
| Interleaved 2 of 5 Length Parameter 2 | 0                            |

#### c. Set lengths to two discrete lengths: Decode only I 2 of 5 symbols containing either of two lengths

| Name                                  | Value                                |
|---------------------------------------|--------------------------------------|
| Interleaved 2 of 5 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Interleaved 2 of 5 Length Parameter 2 | The smaller selected length (1 ~ 55) |

d. **Set lengths within a specific range:** Decode I 2 of 5 symbols with a specific length range.

| Name                                  | Value                                |
|---------------------------------------|--------------------------------------|
| Interleaved 2 of 5 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Interleaved 2 of 5 Length Parameter 2 | The larger selected length (1 ~ 55)  |

### 3. To set Interleaved 2 of 5 Check Digit Verification

Enable this feature to check the integrity of all I 2 of 5 symbols to verify the data complies with either the specified Uniform Symbology Specification (USS), or the Optical Product Code Council (OPCC) check digit algorithm.

| Name                                              |   | Value            |
|---------------------------------------------------|---|------------------|
| Interleaved 2 of 5<br>Check Digit<br>Verification | 0 | *Disable         |
|                                                   | 1 | USS Check Digit  |
|                                                   | 2 | OPCC Check Digit |

### 4. To set Transmit Interleaved 2 of 5 Check Digit

Transmit I 2 of 5 data with or without the check digit.

| Name                                       |   | Value                                           |
|--------------------------------------------|---|-------------------------------------------------|
| Transmit Interleaved 2<br>of 5 Check Digit | 0 | *Do Not Transmit I 2 of 5 Check Digit (Disable) |
|                                            | 1 | Transmit I 2 of 5 Check Digit (Enable)          |

### 5. To Convert Interleaved 2 of 5 to EAN-13

Enable this parameter to convert 14-character I 2 of 5 codes to EAN-13, and transmit to the host as EAN-13. To accomplish this, the I 2 of 5 code must be enabled, and the code must have a leading zero and a valid EAN-13 check digit.

| Name                                    |   | Value                                        |
|-----------------------------------------|---|----------------------------------------------|
| Convert Interleaved 2<br>of 5 to EAN-13 | 0 | *Do Not Convert I 2 of 5 to EAN-13 (Disable) |
|                                         | 1 | Convert I 2 of 5 to EAN-13 (Enable)          |

## 1.7 Discrete 2 of 5 (DTF)

### 1. To enable Discrete 2 of 5

| Name            |   | Value                    |
|-----------------|---|--------------------------|
| Discrete 2 of 5 | 0 | *Disable Discrete 2 of 5 |
|                 | 1 | Enable Discrete 2 of 5   |

### 2. To set lengths of Discrete 2 of 5

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for D 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range. The default is **One Discrete Length: 12**.

**Note** Due to the construction of the D 2 of 5 symbology, it is possible for a scan line covering only a portion of the code to transmit as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (D 2 of 5 - One Discrete Length, Two Discrete Lengths) for D 2 of 5 applications.

#### a. Set lengths to any length: decode D 2 of 5 symbols in any length

| Name                               | Value |
|------------------------------------|-------|
| Discrete 2 of 5 Length Parameter 1 | 0     |
| Discrete 2 of 5 Length Parameter 2 | 0     |

#### b. Set lengths to one discrete length: Decode only D 2 of 5 symbols containing a selected length.

| Name                               | Value                        |
|------------------------------------|------------------------------|
| Discrete 2 of 5 Length Parameter 1 | The selected length (1 ~ 55) |
| Discrete 2 of 5 Length Parameter 2 | 0                            |

#### c. Set lengths to two discrete lengths: Decode only D 2 of 5 symbols containing either of two lengths

| Name                               | Value                                |
|------------------------------------|--------------------------------------|
| Discrete 2 of 5 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Discrete 2 of 5 Length Parameter 2 | The smaller selected length (1 ~ 55) |

#### d. Set lengths within a specific range: Decode D 2 of 5 symbols with a specific length range.

| Name                               | Value                                |
|------------------------------------|--------------------------------------|
| Discrete 2 of 5 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Discrete 2 of 5 Length Parameter 2 | The larger selected length (1 ~ 55)  |

## 1.8 Codabar (NW - 7)

### 1. To enable Codebar

| Name    | Value | Description      |
|---------|-------|------------------|
| Codabar | 0     | *Disable Codabar |
|         | 1     | Enable Codabar   |

### 2. To set lengths of Codabar

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Codabar to any length, one or two discrete lengths, or lengths within a specific range. The default is **Length Within Range: 5 to 55**.

#### a. Set lengths to any length: decode Codabar symbols in any length

| Name                       | Value |
|----------------------------|-------|
| Codabar Length Parameter 1 | 0     |
| Codabar Length Parameter 2 | 0     |

#### b. Set lengths to one discrete length: Decode only Codabar symbols containing a selected length.

| Name                       | Value                        |
|----------------------------|------------------------------|
| Codabar Length Parameter 1 | The selected length (1 ~ 55) |
| Codabar Length Parameter 2 | 0                            |

#### c. Set lengths to two discrete lengths: Decode only Codabar symbols containing either of two lengths

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Codabar Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Codabar Length Parameter 2 | The smaller selected length (1 ~ 55) |

- d. **Set lengths within a specific range:** Decode Codabar symbols with a specific length range.

| Name                       | Value                                |
|----------------------------|--------------------------------------|
| Codabar Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Codabar Length Parameter 2 | The larger selected length (1 ~ 55)  |

### 3. To enable CLSI Editing

Enable this parameter to strip the start and stop characters and insert a space after the first, fifth, and tenth characters of a 14-character Codabar symbol. Enable this feature if the host system requires this data format.

| Name         | Value | Description           |
|--------------|-------|-----------------------|
| CLSI Editing | 0     | *Disable CLSI Editing |
|              | 1     | Enable CLSI Editing   |

### 4. To enable NOTIS Editing

Enable this parameter to strip the start and stop characters from a decoded Codabar symbol. Enable this feature if the host system requires this data format.

**NOTE** Symbol length does not include start and stop characters.

| Name          | Value | Description            |
|---------------|-------|------------------------|
| NOTIS Editing | 0     | *Disable NOTIS Editing |
|               | 1     | Enable NOTIS Editing   |

## 1.9 MSI

### 1. To enable MSI

| Name | Value | Description  |
|------|-------|--------------|
| MSI  | 0     | *Disable MSI |
|      | 1     | Enable MSI   |

### 2. To set lengths of MSI

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for MSI to any length, one or two discrete lengths, or lengths within a specific range. The default is **Length Within Range: 4 to 55**.

**NOTE** Due to the construction of the MSI symbology, it is possible for a scan line covering only a portion of the

code to transmit as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (MSI - One Discrete Length, Two Discrete Lengths) for MSI applications.

**a. Set lengths to any length: decode MSI symbols in any length**

| Name                   | Value |
|------------------------|-------|
| MSI Length Parameter 1 | 0     |
| MSI Length Parameter 2 | 0     |

**b. Set lengths to one discrete length: Decode only MSI symbols containing a selected length.**

| Name                   | Value                        |
|------------------------|------------------------------|
| MSI Length Parameter 1 | The selected length (1 ~ 55) |
| MSI Length Parameter 2 | 0                            |

**c. Set lengths to two discrete lengths: Decode only MSI symbols containing either of two lengths**

| Name                   | Value                                |
|------------------------|--------------------------------------|
| MSI Length Parameter 1 | The larger selected length (1 ~ 55)  |
| MSI Length Parameter 2 | The smaller selected length (1 ~ 55) |

**d. Set lengths within a specific range: Decode MSI symbols with a specific length range.**

| Name                   | Value                                |
|------------------------|--------------------------------------|
| MSI Length Parameter 1 | The smaller selected length (1 ~ 55) |
| MSI Length Parameter 2 | The larger selected length (1 ~ 55)  |

**3. To set MSI Check Digit**

With MSI symbols, one check digit is mandatory and always verified by the reader. The second check digit is optional.

| Name            |   | Value                |
|-----------------|---|----------------------|
| MSI Check Digit | 0 | *One MSI Check Digit |
|                 | 1 | Two MSI Check Digits |

4. To set transmit MSI Check Digit

| Name                     | Value | Description                                   |
|--------------------------|-------|-----------------------------------------------|
| Transmit MSI Check Digit | 0     | *Do Not Transmit MSI Check Digit(s) (Disable) |
|                          | 1     | Transmit MSI Check Digit(s) (Enable)          |

5. To set MSI Check Digit Algorithm

Two algorithms are possible for the verification of the second MSI check digit.

| Name                      | Value | Description    |
|---------------------------|-------|----------------|
| MSI Check Digit Algorithm | 0     | MOD 10/MOD 11  |
|                           | 1     | *MOD 10/MOD 10 |

## 1.10 Chinese 2 of 5

1. To enable Chinese 2 of 5

| Name           | Value | Description             |
|----------------|-------|-------------------------|
| Chinese 2 of 5 | 0     | *Disable Chinese 2 of 5 |
|                | 1     | Enable Chinese 2 of 5   |

## 1.11 Matrix 2 of 5

1. To enable Matrix 2 of 5

| Name          | Value | Description            |
|---------------|-------|------------------------|
| Matrix 2 of 5 | 0     | *Disable Matrix 2 of 5 |
|               | 1     | Enable Matrix 2 of 5   |

2. To set lengths of Matrix 2 of 5

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Matrix 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range. The default is **One Discrete Length: 14**.

- a. **Set lengths to any length:** decode Matrix 2 of 5 symbols in any length

| Name                             | Value |
|----------------------------------|-------|
| Matrix 2 of 5 Length Parameter 1 | 0     |
| Matrix 2 of 5 Length Parameter 2 | 0     |

- b. **Set lengths to one discrete length:** Decode only Matrix 2 of 5 symbols containing a selected length.

| Name                             | Value                        |
|----------------------------------|------------------------------|
| Matrix 2 of 5 Length Parameter 1 | The selected length (1 ~ 55) |
| Matrix 2 of 5 Length Parameter 2 | 0                            |

- c. **Set lengths to two discrete lengths:** Decode only Matrix 2 of 5 symbols containing either of two lengths

| Name                             | Value                                |
|----------------------------------|--------------------------------------|
| Matrix 2 of 5 Length Parameter 1 | The larger selected length (1 ~ 55)  |
| Matrix 2 of 5 Length Parameter 2 | The smaller selected length (1 ~ 55) |

- d. **Set lengths within a specific range:** Decode Matrix 2 of 5 symbols with a specific length range.

| Name                             | Value                                |
|----------------------------------|--------------------------------------|
| Matrix 2 of 5 Length Parameter 1 | The smaller selected length (1 ~ 55) |
| Matrix 2 of 5 Length Parameter 2 | The larger selected length (1 ~ 55)  |

### 3. To set Matrix 2 of 5 Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data.

| Name            | Value | Description                        |
|-----------------|-------|------------------------------------|
| MSI Check Digit | 0     | *Disable Matrix 2 of 5 Check Digit |
|                 | 1     | Enable Matrix 2 of 5 Check Digit   |

### 4. To set transmit Matrix 2 of 5 Check Digit

| Name                     | Value | Description                                |
|--------------------------|-------|--------------------------------------------|
| Transmit MSI Check Digit | 0     | *Do Not Transmit Matrix 2 of 5 Check Digit |
|                          | 1     | Transmit Matrix 2 of 5 Check Digit         |

## 1.12 Inverse 1D

### 1. To set 1D inverse decoder setting

The check digit is the last character of the symbol used to verify the integrity of the data.

| Name       | Value | Description                                                                     |
|------------|-------|---------------------------------------------------------------------------------|
| Inverse 1D | 0     | *Regular - the decoder decodes regular 1D bar codes only.                       |
|            | 1     | Inverse Only - the decoder decodes inverse 1D bar codes only.                   |
|            | 2     | Inverse Autodetect - the decoder decodes both regular and inverse 1D bar codes. |

## 1.13 Postal Codes

### 1. To enable US Postnet

| Name       | Value | Description         |
|------------|-------|---------------------|
| US Postnet | 0     | *Disable US Postnet |
|            | 1     | Enable US Postnet   |

### 2. To enable US Planet

| Name      | Value | Description        |
|-----------|-------|--------------------|
| US Planet | 0     | *Disable US Planet |
|           | 1     | Enable US Planet   |

### 3. To set Transmit US Postal Check Digit

Select whether to transmit US Postal data, which includes both US Postnet and US Planet, with or without the check digit.

| Name                           | Value | Description                           |
|--------------------------------|-------|---------------------------------------|
| Transmit US Postal Check Digit | 0     | Do Not Transmit US Postal Check Digit |
|                                | 1     | *Transmit US Postal Check Digit       |

4. To set enable UK Postal

| Name      | Value | Description        |
|-----------|-------|--------------------|
| UK Postal | 0     | *Disable UK Postal |
|           | 1     | Enable UK Postal   |

5. To set Transmit UK Postal Check Digit

| Name                              | Value | Description                           |
|-----------------------------------|-------|---------------------------------------|
| Transmit UK Postal<br>Check Digit | 0     | Do Not Transmit UK Postal Check Digit |
|                                   | 1     | *Transmit UK Postal Check Digit       |

6. To enable Japan Postal

| Name         | Value | Description           |
|--------------|-------|-----------------------|
| Japan Postal | 0     | *Disable Japan Postal |
|              | 1     | Enable Japan Postal   |

7. To enable Australia Post

| Name           | Value | Description             |
|----------------|-------|-------------------------|
| Australia Post | 0     | *Disable Australia Post |
|                | 1     | Enable Australia Post   |

8. To enable Netherlands KIX Code

| Name                 | Value | Description                   |
|----------------------|-------|-------------------------------|
| Netherlands KIX Code | 0     | *Disable Netherlands KIX Code |
|                      | 1     | Enable Netherlands KIX Code   |

9. To enable USPS 4CB/One Code/Intelligent Mail

| Name                                  | Value | Description                                 |
|---------------------------------------|-------|---------------------------------------------|
| USPS 4CB/One<br>Code/Intelligent Mail | 0     | *Disable USPS 4CB/One Code/Intelligent Mail |
|                                       | 1     | Enable USPS 4CB/One Code/Intelligent Mail   |

10. To enable UPU FICS Postal

| Name            | Value | Description              |
|-----------------|-------|--------------------------|
| UPU FICS Postal | 0     | *Disable UPU FICS Postal |
|                 | 1     | Enable UPU FICS Postal   |

## 1.14 GS1 DataBar

### 1. To enable GS1 DataBar

Enable or disable the following code types:

- GS1 DataBar Omnidirectional
- GS1 DataBar Truncated
- GS1 DataBar Stacked
- GS1 DataBar Stacked Omnidirectional,

| Name        | Value | Description         |
|-------------|-------|---------------------|
| GS1 DataBar | 0     | Disable GS1 DataBar |
|             | 1     | *Enable GS1 DataBar |

### 2. To enable GS1 DataBar Limited

| Name                | Value | Description                  |
|---------------------|-------|------------------------------|
| GS1 DataBar Limited | 0     | *Disable GS1 DataBar Limited |
|                     | 1     | Enable GS1 DataBar Limited   |

### 3. To enable GS1 DataBar Expanded

| Name                 | Value | Description                  |
|----------------------|-------|------------------------------|
| GS1 DataBar Expanded | 0     | Disable GS1 DataBar Expanded |
|                      | 1     | *Enable GS1 DataBar Expanded |

### 4. To convert GS1 DataBar to UPC/EAN

This parameter only applies to GS1 DataBar and GS1 DataBar Limited symbols not decoded as part of a Composite symbol. Enable this to strip the leading '010' from DataBar and DataBar Limited symbols encoding a single zero as the first digit, and report the bar code as EAN-13.

For bar codes beginning with two or more zeros but not six zeros, this parameter strips the leading '0100' and reports the bar code as UPC-A. The UPC-A Preamble parameter that transmits the system character and country code applies to converted bar codes. Note that neither the system character nor the check digit can be stripped.

| Name                           | Value | Description                             |
|--------------------------------|-------|-----------------------------------------|
| Convert GS1 DataBar to UPC/EAN | 0     | *Disable Convert GS1 DataBar to UPC/EAN |
|                                | 1     | Enable Convert GS1 DataBar to UPC/EAN   |

## 1.15 Composite

### 1. To enable Composite CC-C

Enable or disable Composite bar codes of type CC-C.

| Name           | Value | Description   |
|----------------|-------|---------------|
| Composite CC-C | 0     | *Disable CC-C |
|                | 1     | Enable CC-C   |

### 2. To enable Composite CC-A/B

Enable or disable Composite bar codes of type CC-A/B.

**NOTE** if you enable this code type, also see UPC Composite Mode.

| Name             | Value | Description      |
|------------------|-------|------------------|
| Composite CC-A/B | 0     | *Disable CC- A/B |
|                  | 1     | Enable CC-A/B    |

### 3. To enable Composite TLC-39

Enable or disable Composite bar codes of type TLC-39.

| Name             | Value | Description     |
|------------------|-------|-----------------|
| Composite TLC-39 | 0     | *Disable TLC-39 |
|                  | 1     | Enable TLC-39   |

### 4. To enable UPC Composite Mode

If you enable Composite CC-A/B, select an option for linking UPC symbols with a 2D symbol during transmission as if they were one symbol:

- Select **UPC Never Linked** to transmit UPC bar codes regardless of whether a 2D symbol is detected.
- Select **UPC Always Linked** to transmit UPC bar codes and the 2D portion.  
If 2D is not present, the UPC bar code does not transmit.
- If you select **Autodiscriminate UPC Composites**, the decoder determines if there is a 2D portion, then transmits the UPC, as well as the 2D portion if present.

| Name               | Value | Description                     |
|--------------------|-------|---------------------------------|
| UPC Composite Mode | 0     | UPC Never Linked                |
|                    | 1     | *UPC Always Linked              |
|                    | 2     | Autodiscriminate UPC Composites |

## 1.16 2D Symbologies

### 1. To enable PDF417

| Name   | Value | Description    |
|--------|-------|----------------|
| PDF417 | 0     | Disable PDF417 |
|        | 1     | *Enable PDF417 |

### 2. To enable MicroPDF417

| Name        | Value | Description          |
|-------------|-------|----------------------|
| MicroPDF417 | 0     | *Disable MicroPDF417 |
|             | 1     | Enable MicroPDF417   |

### 3. To enable Code 128 Emulation

Enable this parameter to transmit data from certain MicroPDF417 symbols as Code 128. AIM Code ID

Character (01h) must be enabled for this parameter to work.

Enable Code 128 Emulation to transmit these MicroPDF417 symbols with one of the following prefixes:

]C1 if the first codeword is 903-905

]C2 if the first codeword is 908 or 909

]C0 if the first codeword is 910 or 911

Disable Code 128 Emulation to transmit these MicroPDF417 symbols with one of the following prefixes:

]L3 if the first codeword is 903-905

]L4 if the first codeword is 908 or 909

]L5 if the first codeword is 910 or 911

**NOTE** Linked MicroPDF codewords 906, 907, 912, 914, and 915 are not supported. Use GS1 Composites instead.

| Name               | Value | Description                 |
|--------------------|-------|-----------------------------|
| Code 128 Emulation | 0     | *Disable Code 128 Emulation |
|                    | 1     | Enable Code 128 Emulation   |

4. To enable Data Matrix

| Name        | Value | Description         |
|-------------|-------|---------------------|
| Data Matrix | 0     | Disable Data Matrix |
|             | 1     | *Enable Data Matrix |

5. To set Data Matrix Inverse

| Name                | Value | Description                                                                              |
|---------------------|-------|------------------------------------------------------------------------------------------|
| Data Matrix Inverse | 0     | *Regular Only - the decoder decodes regular Data Matrix bar codes only.                  |
|                     | 1     | Inverse Only - the decoder decodes inverse Data Matrix bar codes only.                   |
|                     | 2     | Inverse Autodetect - the decoder decodes both regular and inverse Data Matrix bar codes. |

6. To enable Maxicode

| Name     | Value | Description       |
|----------|-------|-------------------|
| Maxicode | 0     | *Disable Maxicode |
|          | 1     | Enable Maxicode   |

7. To enable QR Code

| Name    | Value | Description     |
|---------|-------|-----------------|
| QR Code | 0     | Disable QR Code |
|         | 1     | *Enable QR Code |

8. To enable MicroQR

| Name    | Value | Description     |
|---------|-------|-----------------|
| MicroQR | 0     | Disable MicroQR |
|         | 1     | *Enable MicroQR |

9. To enable Aztec

| Name  | Value | Description   |
|-------|-------|---------------|
| Aztec | 0     | Disable Aztec |
|       | 1     | *Enable Aztec |

10. To set Aztec Inverse

| Name          | Value | Description                                                                         |
|---------------|-------|-------------------------------------------------------------------------------------|
| Aztec Inverse | 0     | Regular Only - the decoder decodes regular Aztec bar codes only.                    |
|               | 1     | Inverse Only - the decoder decodes inverse Aztec bar codes only.                    |
|               | 2     | *Inverse Autodetect - the decoder decodes both regular and inverse Aztec bar codes. |

11. To enable Han Xin

| Name    | Value | Description      |
|---------|-------|------------------|
| Han Xin | 0     | *Disable Han Xin |
|         | 1     | Enable Han Xin   |

12. To set Han Xin Inverse

| Name            | Value | Description                                                                          |
|-----------------|-------|--------------------------------------------------------------------------------------|
| Han Xin Inverse | 0     | *Regular Only - the decoder decodes Han Xin bar codes with normal reflectance only.  |
|                 | 1     | Inverse Only - the decoder decodes Han Xin bar codes with inverse reflectance only.  |
|                 | 2     | Inverse Autodetect - the decoder decodes both regular and inverse Han Xin bar codes. |

## 1.17 Others

### 1. To set Trigger Modes

| Name          | Value | Description                                                                                                                                                                                                                                                                                          |
|---------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trigger Modes | 0     | <b>*Level</b> - A trigger event activates decode processing, which continues until the trigger event ends, a valid decode, or the Decode Session Timeout occurs.                                                                                                                                     |
|               | 7     | <b>Presentation Mode</b> - When the decoder detects an object in its field of view, it triggers and attempt to decode. The range of object detection does not vary under normal lighting conditions. This applies to decode mode only. In this mode the unit does not enter Low Power mode.          |
|               | 8     | <b>Host</b> - A host command issues the triggering signal. The decoder interprets an actual trigger pull as a Level triggering option.                                                                                                                                                               |
|               | 9     | <b>Auto Aim</b> - This trigger mode turns on the aiming pattern when the decoder senses motion. A trigger pull activates decode processing. After 2 seconds of inactivity the aiming pattern automatically shuts off.                                                                                |
|               | 10    | <b>Auto Aim with Illumination</b> - This trigger mode turns on the aiming pattern and internal illumination LEDs when the decoder senses motion. A trigger pull activates decode processing. After 2 seconds of inactivity the aiming pattern and internal illumination LEDs automatically shut off. |

### 2. To set Picklist Mode

Picklist mode enables the decoder to decode only bar codes aligned under the center of the aiming pattern.

**NOTE** With Picklist Mode enabled, the decode aiming pattern turns on even when the Decode Aiming Pattern

is disabled.

| Name          | Value | Description                                                 |
|---------------|-------|-------------------------------------------------------------|
| Picklist Mode | 0     | <b>*Disabled Always</b> - Picklist mode is always disabled. |
|               | 2     | <b>Enabled Always</b> - Picklist mode is always enabled.    |

### 3. To set decode session timeout

This parameter sets the maximum time decode processing continues during a scan attempt.

| Name                   | Value      | Description                                                                                              |
|------------------------|------------|----------------------------------------------------------------------------------------------------------|
| Decode Session Timeout | 0.5 to 9.9 | It is programmable in 0.1 second increments from 0.5 to 9.9 seconds. The default timeout is 9.9 seconds. |

### 4. To set Low Light Motion Detection Assist

In **Presentation Mode**, this feature allows motion detection in dim to dark illumination environments by using the aiming dot or dim illumination to assist in the detection of motion by providing a low light source.

**NOTE** If this parameter is enabled and *Decoding Illumination* is disabled, this parameter takes precedence.

| Name                              | Value | Description                                                   |
|-----------------------------------|-------|---------------------------------------------------------------|
| Low Light Motion Detection Assist | 0     | *Disable Low Light Motion Detection Assist                    |
|                                   | 1     | Enable Aiming Dot for Low Light Motion Detection Assist       |
|                                   | 2     | Enable Dim Illumination for Low Light Motion Detection Assist |

### 5. To set transmit Code ID Character

A Code ID character identifies the code type of a scanned bar code. This is useful when decoding more than one code type. In addition to any single character prefix already selected, the Code ID character is inserted between the prefix and the decoded symbol.

| Name                       | Value | Description              |
|----------------------------|-------|--------------------------|
| Transmit Code ID Character | 0     | *None                    |
|                            | 1     | AIM Code ID Character    |
|                            | 2     | Symbol Code ID Character |

## Appendix B Symbol Code Identifiers

| Code Character | Code Type                                    | Code Character | Code Type                          |
|----------------|----------------------------------------------|----------------|------------------------------------|
| A              | UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13          | P00            | Data Matrix                        |
| B              | Code 39, Code 32                             | P01            | QR Code, MicroQR                   |
| C              | Codabar                                      | P02            | Maxicode                           |
| D              | Code 128, ISBT 128, ISBT 128 Concatenated    | P03            | US Postnet                         |
| E              | Code 93                                      | P04            | US Planet                          |
| F              | Interleaved 2 of 5                           | P05            | Japan Postal                       |
| G              | Discrete 2 of 5, or Discrete 2 of 5 IATA     | P06            | UK Postal                          |
| H              | Code 11                                      | P08            | Netherlands KIX Code               |
| J              | MSI                                          | P09            | Australia Post                     |
| K              | GS1-128                                      | P0A            | USPS 4CB/One Code/Intelligent Mail |
| L              | Bookland EAN                                 | P0B            | UPU FICS Postal                    |
| M              | Trioptic Code 39                             | P0H            | Han Xin                            |
| N              | Coupon Code                                  |                |                                    |
| R              | GS1 DataBar Family                           |                |                                    |
| S              | Matrix 2 of 5                                |                |                                    |
| T              | UCC Composite, TLC 39                        |                |                                    |
| U              | Chinese 2 of 5                               |                |                                    |
| V              | Korean 3 of 5                                |                |                                    |
| X              | ISSN EAN, PDF417, Macro PDF417, Micro PDF417 |                |                                    |
| z              | Aztec, Aztec Rune                            |                |                                    |

## Appendix C AIM Code Identifiers

Each AIM Code Identifier contains the three-character string ]cm where:

- ] = Flag Character (ASCII 93)
- c = Code Character (see Aim Code Character Table)
- m = Modifier Character (see Modifier Character Table)

**Aim Code Character Table**

| Aim Code Character | Code Type                                                                                                                                                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A                  | Code 39, Code 39 Full ASCII, Code 32                                                                                                                                                                                              |
| C                  | Code 128, ISBT 128, ISBT 128 Concatenated, GS1-128, Coupon                                                                                                                                                                        |
| d                  | Data Matrix                                                                                                                                                                                                                       |
| E                  | UPC/EAN, Coupon (UPC portion)                                                                                                                                                                                                     |
| e                  | GS1 DataBar Family                                                                                                                                                                                                                |
| F                  | Codabar                                                                                                                                                                                                                           |
| G                  | Code 93                                                                                                                                                                                                                           |
| H                  | Code 11                                                                                                                                                                                                                           |
| h                  | Han Xin                                                                                                                                                                                                                           |
| I                  | Interleaved 2 of 5                                                                                                                                                                                                                |
| L                  | PDF417, Macro PDF417, Micro PDF417                                                                                                                                                                                                |
| L2                 | TLC 39                                                                                                                                                                                                                            |
| M                  | MSI                                                                                                                                                                                                                               |
| Q                  | QR Code, MicroQR                                                                                                                                                                                                                  |
| S                  | Discrete 2 of 5, IATA 2 of 5                                                                                                                                                                                                      |
| U                  | Maxicode                                                                                                                                                                                                                          |
| z                  | Aztec, Aztec Rune                                                                                                                                                                                                                 |
| X                  | Bookland EAN, ISSN EAN, Trioptic Code 39, Chinese 2 of 5, Matrix 2 of 5, Korean 3 of 5, US Postnet, US Planet, UK Postal, Japan Postal, Australia Post, Netherlands KIX Code, USPS 4CB/One Code/Intelligent Mail, UPU FICS Postal |

The modifier character is the sum of the applicable option values based on the Modifier Character table below.

**Modifier Character Table**

| Code Type        | Option Value                                                                                                               | Option                                                                                         |
|------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Code 39          | 0                                                                                                                          | No check character or Full ASCII processing.                                                   |
|                  | 1                                                                                                                          | Reader has checked one check character.                                                        |
|                  | 3                                                                                                                          | Reader has checked and stripped check character.                                               |
|                  | 4                                                                                                                          | Reader has performed Full ASCII character conversion.                                          |
|                  | 5                                                                                                                          | Reader has performed Full ASCII character conversion and checked one check character.          |
|                  | 7                                                                                                                          | Reader has performed Full ASCII character conversion and checked and stripped check character. |
|                  | Example: A Full ASCII bar code with check character W, A+I+MI+DW, is transmitted as ]A7AIMID where 7 = (3+4).              |                                                                                                |
| Trioptic Code 39 | 0                                                                                                                          | No option specified at this time. Always transmit 0.                                           |
|                  | Example: A Trioptic bar code 412356 is transmitted as ]X0412356                                                            |                                                                                                |
| Code 128         | 0                                                                                                                          | Standard data packet, no Function code 1 in first symbol position.                             |
|                  | 1                                                                                                                          | Function code 1 in first symbol character position.                                            |
|                  | 2                                                                                                                          | Function code 1 in second symbol character position.                                           |
|                  | Example: A Code (EAN) 128 bar code with Function 1 character(FNC1) in the first position, AIMID is transmitted as ]C1AIMID |                                                                                                |
| I 2 of 5         | 0                                                                                                                          | No check digit processing.                                                                     |
|                  | 1                                                                                                                          | Reader has validated check digit.                                                              |
|                  | 3                                                                                                                          | Reader has validated and stripped check digit.                                                 |
|                  | Example: An I 2 of 5 bar code without check digit, 4123, is transmitted as ]I04123                                         |                                                                                                |
| Codabar          | 0                                                                                                                          | No check digit processing.                                                                     |
|                  | 1                                                                                                                          | Reader has checked check digit.                                                                |
|                  | 3                                                                                                                          | Reader has stripped check digit before transmission.                                           |
|                  | Example: A Codabar bar code without check digit, 4123, is transmitted as ]F04123                                           |                                                                                                |
| Code 93          | 0                                                                                                                          | No options specified at this time. Always transmit 0.                                          |
|                  | Example: A Code 93 bar code 012345678905 is transmitted as ]G0012345678905                                                 |                                                                                                |
| MSI              | 0                                                                                                                          | Check digits are sent.                                                                         |
|                  | 1                                                                                                                          | No check digit is sent.                                                                        |

|                                                                    |                                                                                             |                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                    | Example: An MSI bar code 4123, with a single check digit checked, is transmitted as ]M14123 |                                                                                                                                                                                                                                         |
| D 2 of 5                                                           | 0                                                                                           | No options specified at this time. Always transmit 0.                                                                                                                                                                                   |
|                                                                    | Example: A D 2 of 5 bar code 4123, is transmitted as ]S04123                                |                                                                                                                                                                                                                                         |
| UPC/EAN                                                            | 0                                                                                           | Standard data packet in full EAN format, i.e. 13 digits for UPC-A, UPC-E, and EAN-13 (not including supplemental data).                                                                                                                 |
|                                                                    | 1                                                                                           | Two digit supplemental data only.                                                                                                                                                                                                       |
|                                                                    | 2                                                                                           | Five digit supplemental data only.                                                                                                                                                                                                      |
|                                                                    | 3                                                                                           | Combined data packet comprising 13 digits from EAN-13, UPC-A or UPC-E symbol and 2 or 5 digits from supplemental symbol.                                                                                                                |
|                                                                    | 4                                                                                           | EAN-8 data packet.                                                                                                                                                                                                                      |
|                                                                    | Example: A UPC-A bar code 012345678905 is transmitted as ]E00012345678905                   |                                                                                                                                                                                                                                         |
| Bookland EAN                                                       | 0                                                                                           | No options specified at this time. Always transmit 0.                                                                                                                                                                                   |
|                                                                    | Example: A Bookland EAN bar code 123456789X is transmitted as ]X0123456789X                 |                                                                                                                                                                                                                                         |
| ISSN EAN                                                           | 0                                                                                           | No options specified at this time. Always transmit 0.                                                                                                                                                                                   |
|                                                                    | Example: An ISSN EAN bar code 123456789X is transmitted as ]X0123456789X                    |                                                                                                                                                                                                                                         |
| Code 11                                                            | 0                                                                                           | Single check digit                                                                                                                                                                                                                      |
|                                                                    | 1                                                                                           | Two check digits                                                                                                                                                                                                                        |
|                                                                    | 3                                                                                           | Check characters validated but not transmitted.                                                                                                                                                                                         |
| GS1 DataBar Family                                                 | 0                                                                                           | No option specified at this time. Always transmit 0. GS1 DataBar and GS1 DataBar Limited transmit with an Application Identifier "01".<br>Note: In GS1-128 emulation mode, GS1 DataBar is transmitted using Code 128 rules (i.e., ]C1). |
|                                                                    | Example: A GS1 DataBar bar code 0110012345678902 is transmitted as ]e00110012345678902.     |                                                                                                                                                                                                                                         |
| EAN.UCC Composites (GS1 DataBar, GS1-128, 2D portion of composite) | 0                                                                                           | Native mode transmission.<br>Note: UPC portion of composite is transmitted using UPC rules. Standard data packet.                                                                                                                       |
|                                                                    | 1                                                                                           | Data packet containing the data following an encoded symbol UPC separator character.                                                                                                                                                    |
|                                                                    | 2                                                                                           | Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.                                                                                                             |
|                                                                    | 3                                                                                           | Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.                                                                                                                     |

|             |                                                                                                    |                                                                                                                                                                                                                                                                                       |
|-------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | 1                                                                                                  | GS1-128 emulation<br>Note: UPC portion of composite is transmitted using UPC rules. Data packet is a GS1-128 symbol (i.e., data is preceded with ]JC1).                                                                                                                               |
| PDF417      | 0                                                                                                  | Reader set to conform to protocol defined in 1994 PDF417 Micro PDF417 symbology specifications. Note: When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92DEC has been doubled in transmission.             |
|             | 1                                                                                                  | Reader set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92DEC are doubled.                                                                                                                                                                       |
|             | 2                                                                                                  | Reader set for Basic Channel operation (no escape character transmission protocol). Data characters 92DEC are not doubled. Note: When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted. |
|             | 3                                                                                                  | The bar code contains a GS1-128 symbol, and the first codeword is 903-907, 912, 914, 915.                                                                                                                                                                                             |
|             | 4                                                                                                  | The bar code contains a GS1-128 symbol, and the first codeword is in the range 908-909.                                                                                                                                                                                               |
|             | 5                                                                                                  | The bar code contains a GS1-128 symbol, and the first codeword is in the range 910-911.                                                                                                                                                                                               |
|             | Example: A PDF417 bar code ABCD, with no transmission protocol enabled, is transmitted as ]L2ABCD. |                                                                                                                                                                                                                                                                                       |
| Data Matrix | 0                                                                                                  | ECC 000-140, not supported.                                                                                                                                                                                                                                                           |
|             | 1                                                                                                  | ECC 200.                                                                                                                                                                                                                                                                              |
|             | 2                                                                                                  | ECC 200, FNC1 in first or fifth position.                                                                                                                                                                                                                                             |
|             | 3                                                                                                  | ECC 200, FNC1 in second or sixth position.                                                                                                                                                                                                                                            |
|             | 4                                                                                                  | ECC 200, ECI protocol implemented.                                                                                                                                                                                                                                                    |
|             | 5                                                                                                  | ECC 200, FNC1 in first or fifth position, ECI protocol implemented.                                                                                                                                                                                                                   |
|             | 6                                                                                                  | ECC 200, FNC1 in second or sixth position, ECI protocol implemented.                                                                                                                                                                                                                  |
| MaxiCode    | 0                                                                                                  | Symbol in Mode 4 or 5.                                                                                                                                                                                                                                                                |
|             | 1                                                                                                  | Symbol in Mode 2 or 3.                                                                                                                                                                                                                                                                |
|             | 2                                                                                                  | Symbol in Mode 4 or 5, ECI protocol implemented.                                                                                                                                                                                                                                      |
|             | 3                                                                                                  | Symbol in Mode 2 or 3, ECI protocol implemented in secondary message.                                                                                                                                                                                                                 |

|         |   |                                                                                |
|---------|---|--------------------------------------------------------------------------------|
| QR Code | 0 | Model 1 symbol.                                                                |
|         | 1 | Model 2 / MicroQR symbol, ECI protocol not implemented.                        |
|         | 2 | Model 2 symbol, ECI protocol implemented.                                      |
|         | 3 | Model 2 symbol, ECI protocol not implemented, FNC1 implied in first position.  |
|         | 4 | Model 2 symbol, ECI protocol implemented, FNC1 implied in first position.      |
|         | 5 | Model 2 symbol, ECI protocol not implemented, FNC1 implied in second position. |
|         | 6 | Model 2 symbol, ECI protocol implemented, FNC1 implied in second position.     |
| Aztec   | 0 | Aztec symbol.                                                                  |
|         | C | Aztec Rune symbol.                                                             |